FY-2002 PROPOSED SCOPE OF WORK for: **Project #:C-9**
Yampa River Management Plan

Lead Agency: U.S. Fish and Wildlife Service
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Category:	Expected Funding Source:
_ Ongoing project	_ Annual funds
x Ongoing-revised project	x Capital funds
_ Requested new project	_ Other
_ Unsolicited proposal	

I. Title of Proposal:

Develop a management plan for the Yampa River Basin that promotes recovery of endangered fishes of the Upper Colorado River Basin and offsets impacts of existing and foreseeable future water depletions from the Yampa River to meet human needs.

II. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake Rivers
1.A.2. Develop Yampa River management plan

III. Study Background/Rationale and Hypotheses:

A management plan will be developed for the Yampa River Basin to serve as the basis for the U.S. Fish and Wildlife Service (FWS) to render a programmatic biological opinion (PBO). The PBO will encompass current and foreseeable future water depletions in the Yampa River Basin. This plan will quantify water depletions to be covered and recovery actions to be implemented to offset the impacts of depletions and promote recovery of the endangered fishes. Recovery actions will include provision for and protection of instream flows, habitat restoration and maintenance, nonnative fish control, endangered fish stocking and monitoring endangered fish populations.

The Yampa River, a principal tributary to the Green River in northwest Colorado, is widely regarded as one of the most important tributaries in the Upper Colorado River Basin to the recovery of four endangered fishes: Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. Tyus and Saunders (2001) rank the Yampa first out of 13 major tributaries in terms of its potential contribution to recovery (Table 1). One of the least developed subbasins in the Upper Colorado River Basin, the Yampa River exhibits a relatively unaltered spring hydrograph which benefits the fishes not only in the Yampa, but also in the Green River downstream from the confluence.

Table 1. Relative contributions of tributaries and obstacles to endangered species recovery (adapted from Tyus and Saunders 2001).

Tributary	Contributions to Recovery			Rank[2]	Obstacles to Recovery
	Direct	Indirect[1]	Total		
Green River Subbasin					
Yampa River	5	14	19	1*	Nonnatives
Little Snake River	3	11	14	5*	Nonnatives
Tributary Green River[3]	4	6	10	6*	Flow regulation, temperature, nonnatives
Duchesne River	3	6	9	8	Flow depletion, nonnatives
White River	3	12	15	4	Barrier, nonnatives
Price River	2	5	7	10	Flow depletion
San Rafael River	3	5	8	9	Flow depletion
Colorado River subbasin					
Tributary Colorado[4]	4	14	18	2*	Barriers
Plateau Creek	1	6	7	10	Barriers
Gunnison River	4	13	17	3	Barriers, water quality
Dolores River	1	9	10	6	Water quality(?)
Lake Powell					
Dirty Devil Arm	1	5	6	12	Little prospect of recovery
Escalante Arm	1	5	6	12	Little prospect of recovery

[1] Weighted score based on 1 point for low, 2 points for medium, and 3 points for high values in each of 5 different flow/sediment attributes

[2] Ranked by total score (* covered by existing or imminent PBO's or BO's.)

[3] Upstream from Yampa River – covered by Flaming Gorge BO

[4] Upstream from Gunnison River – covered by Colorado River ("15-mile reach") PBO

Flows in the Yampa River are characterized by seasonal extremes, ranging from average spring peaks of about 10,000 cubic feet per second (cfs) to average minimum base flows in late summer of 137 cfs at the Maybell gage. In 1934, an extremely dry year, the lowest flows, 2 cfs, were recorded at Maybell. In 2000, FWS adopted base flow recommendations for the Yampa River of 93 cfs from July through October (Modde et al. 1999) and 124 cfs November–March. These are not absolute flow minima, but should be viewed in an historical context. The FWS determined that 7,000 acre-feet (AF) of augmentation would satisfy the flow needs of the fishes in all but the driest years. Water supply alternatives were identified and evaluated to meet this need.

Nonnative fishes in the Yampa River Basin also constitute an important challenge to the recovery of the endangered fishes in the Yampa River. Tyus and Saunders (1996) identified three priority issues that need to be addressed for the Yampa River:

1. Movement of nonnatives fishes (chiefly large predators such as northern pike and smallmouth bass) into the Yampa River from water bodies in the floodplain, impoundments such as Elkhead Reservoir, and upstream reaches of the river.

2. Nonnative predators in the mainstem Yampa River prey on natives, especially young razorback sucker, Colorado pikeminnow and humpback chub.

3. Movement of nonnatives from the Green River into the Yampa River.

Tyus and Saunders (1996) recommended several strategies and actions to deal with these issues including development of a fisheries and conservation management plan emphasizing public relations and acceptable alternative fishing opportunities, and controlling the escapement of nonnative fishes from Elkhead Reservoir. Effective implementation of these actions will depend on the support of the Colorado Division of Wildlife and local citizens.

IV. Study Goals, Objectives, End Product:

A. Goal: The ultimate goal of the Yampa River Management Plan (Yampa Plan) is to provide and/or protect instream flows and other habitat needed to maintain and recover endangered fishes while allowing depletions of water for existing and foreseeable future human needs to continue.

B. Objectives:

1. Provide a framework to address issues raised by Recovery Program participants, the Yampa River Basin Partnership and others.

2. Review/update human consumptive demand projections describing the amount of water that is needed to meet current and foreseeable future human needs.

3. Determine the base flow needs of the endangered fishes in the Yampa River and quantify how much water is needed to augment base flows under current and future demand conditions.

4. Determine if existing diversion structures and natural barriers impede fish migration and develop appropriate remedies.

5. Determine the role of the Yampa River in the recovery of the endangered fishes.

6. Develop and implement actions to reduce/minimize impacts on native fishes due to the presence of competitive and predatory nonnative fishes.

7. Ensure coordination between relevant elements of the Yampa Plan and management actions proposed by the State of Colorado as it develops its Aquatic Wildlife Management Plan and stocking plans for the Yampa River.

8. Identify and evaluate potential impacts of current and foreseeable future water depletions on listed threatened and endangered species.

9. Identify and evaluate alternatives to meet the base flow needs of the listed fishes.

10. Develop a management plan that incorporates the above items in cooperation with local stakeholders, local governments, state and federal agencies, and other parties, as appropriate.

11. Fulfill NEPA and ESA requirements for the Yampa Plan.

12. Develop and execute a formal agreement among the FWS, Colorado, Wyoming and other parties, as appropriate, to implement the Yampa Plan.

C. End Products:

1. Report reviewing/updating 1990 consumptive use projections describing the amount of water needed to meet human needs under current and future (ca. 2045) demand conditions (Yampa Valley Water Demand Study – BBC 1998).

2. Report identifying if natural and man-made barriers in the Yampa River impede migration of Colorado pikeminnow (Modde et al. 1999).

3. Report identifying minimum August–October stream flows needed to provide habitat for endangered fishes in the Yampa River (Modde et al. 1999).

4. Report evaluating the role of tributary streams in the recovery of the endangered fishes of the Upper Colorado River Basin (Tyus and Saunders 2001).

5. A plan for managing nonnative sportfish to protect native fish in the Yampa River (Yampa River Aquatic Wildlife Management Plan – CDOW 1998).

6. Report synthesizing the results of technical studies (1- 4 above), and identifying flow management alternatives for the Yampa River including potential source(s) of water, both structural and non-structural, if necessary to meet the current and future instream flow needs of endangered fishes (Yampa River Basin Research Final Synthesis Report – Ayres Associates 1999).

7. Final Draft Yampa River Management Plan (October 2001)

8. Final Yampa River Management Plan; Biological Assessment (January 2002)

9. Draft Environmental Assessment (EA) (April 2002)

10. Draft Programmatic Biological Opinion (May 2002)

11. Final EA (May 2002)

12. Final Programmatic Biological Opinion (July 2002)

13. Cooperative Agreement (July 2002).

V. Study area:

The geographic scope of depletions considered in the Yampa Plan is the mainstem Yampa River and its tributaries from Yamcolo Reservoir downstream to its confluence with the Green River. An assessment of impacts on Yampa River base flows due to these depletions extends from Craig, Colorado, downstream to the Green River. Impacts on spring peak flows will be assessed from Craig, Colorado, downstream through the middle Green River near Ouray, Utah.

VI. Study Methods/Approach

Overall direction for development of the Yampa Plan was provided by a workgroup composed of representatives from the States of Colorado and Wyoming, water users, federal agencies, environmental groups, and other Yampa Basin stakeholders. The Yampa River Basin Partnership provided the framework around which to coalesce this diverse group. The Yampa Project Management Team, initially formed to guide this project, was incorporated into this larger workgroup. The workgroup was responsible for addressing issues of existing and future water depletions and flows needed for endangered fishes.

VII. Task Description and Schedule

1. Review/update 1990 consumptive use projections describing the amount of water to meet human needs under current and foreseeable future demand conditions (completed).

2. Determine if natural and man-made barriers in the Yampa River impede migration of Colorado pikeminnow (completed).

3. Determine minimum August–October stream flows needed to provide viable habitat for endangered fishes in the Yampa River (completed).

4. Develop an augmentation protocol and quantify the volume of augmentation needed to meet these flow recommendations (completed).

5. Work with Recovery Program participants and local stakeholders to identify management options for meeting the flow needs of the listed fishes while water development continues in the Yampa Basin (completed).

6. Evaluate the feasibility of implementing flow augmentation alternatives under current and foreseeable future demand conditions (completed).

7. Determine the role and relative importance of the Yampa River to the recovery of the endangered fishes (completed).

8. Develop, implement and evaluate a nonnative fish control program for the Yampa Basin (ongoing).

9. Incorporate the above elements into a management plan that describes depletions covered by the plan, alternative actions, including recovery actions, to offset the impacts of depletions, and recommendations for implementation (January 2002).

10. Determine NEPA and ESA requirements of proposed action(s) under the management plan, as necessary, and initiate scoping (November 2001).

11. Work with CWCB hydrologists to fully describe and evaluate the hydrologic impacts of water management options for the Yampa River (ongoing).

12. Collect and analyze environmental data, evaluate and document beneficial and adverse impacts of implementing the elements of the Yampa Plan (ongoing).

13. Prepare Biological Assessment; initiate consultation (January 2002)

14. Prepare draft EA for the Yampa Plan (April 2002).

15. Prepare Final EA for the Yampa Plan (June 2002)

16. Develop and execute an agreement to implement the Yampa Plan (July 2002)

17. Public Involvement Activities: Implement public outreach activities to obtain public input in developing the Yampa River Management Plan and promote acceptance of the plan (ongoing).

18. Hydrology Support: Model alternative future flow scenarios for Task 12 above.

19. Technical Project Support and Coordination. Provide technical support and coordination related to the development of the Yampa Plan:

    a. Preparing/reviewing scopes of work related to the development and implementation of the management plan
    b. Coordinating activities of Yampa workgroup
    c. Coordinating public involvement activities
    d. Responding to requests for information
    e. Performing staff work for the Yampa workgroup
    f. Writing, reviewing and/or synthesizing documents

VIII. FY-2002 Work

Task 8. Carry out nonnative fish control

Deliverables: Scopes of work and annual reports

FY 2002 Budget: (funded under separate SOWs for individual projects)

Task 9. Develop Yampa River Basin Management Plan

Deliverables: Draft and Final Management Plans

FY 2002 Budget: (funded under Program Management)

Task 10. NEPA scoping

Deliverables: Scope of work for NEPA compliance activities

FY 2002 Budget: $0 (funded under Program Management)

Task 11. Describe and evaluate hydrologic impacts of water management options

Deliverables: Hydrologic analyses

FY 2002 Budget: $0 (funded under Program Management)

Task 12. Collect and analyze environmental data, evaluate and document impacts of implementing the Yampa Plan.

Deliverables: Scope(s) of work; annual report(s)

FY 2002 Budget: $345,244 (contractor(s) to prepare separate SOW(s))

Task 13. Prepare biological assessment

Deliverables: Biological assessment

FY 2002 Budget: $0 (funded under Program Management)

Task 14. Prepare draft EA (March 2002)

Deliverables: Draft EA

FY 2002 Budget: $0 (funded under Program Management)

Task 15. Prepare Final EA (May 2002)

Deliverables: Final EA

FY 2002 Budget: $0 (funded under Program Management)

Task 16. Final Yampa River Management Plan and Cooperative Agreement

Deliverables: Final Management Plan; Cooperative Agreement

FY 2002 Budget: $0 (funded under Program Management)

Task 17. Public Involvement Activities

Deliverables: Public Involvement Plan

FY 2002 Budget: $0 (see Project # PIP-12A&K)

Task 18. Hydrology Support

Deliverables: Hydrologic analyses

FY 2002 Budget: $0 (see Project # 19B & 71)

Task 19. Project Coordination/Management

Deliverables: Scopes of work; annual work plans; annual reports

FY 2002 Budget: $0 (funded under Program Management)

FY 2003 Work

Task 8. Carry out nonnative fish control programs

Deliverables: Scopes of work and annual reports

FY 2003 Budget: $0 (funded under separate SOWs for individual projects)

Task 12. Collect and analyze environmental data, evaluate and document impacts.

Deliverables: Site-specific NEPA document(s) for water supply alternative(s)

FY 2003 Budget: $289,412 (contractor(s) to prepare separate SOW(s))

Task 17. Public Involvement Activities

Deliverables: Public Involvement Plan

FY 2003 Budget: $0 (see Project # PIP-12A&K)

Task 19. Project Coordination/Management

Deliverables: Scopes of work; annual work plans; annual reports

FY 2003 Budget: $0 (funded under Program Management)

IX. Budget Summary

	FY 2002	FY 2003	TOTAL	COMMENTS
Task 1:	–	–	–	completed
Task 2:	–	–	–	completed
Task 3:	–	–	–	completed
Task 4:	–	–	–	completed
Task 5:	–	–	–	completed
Task 6:	–	–	–	completed
Task 7:	–	–	–	completed
Task 8:	$0	$0	$0	Separate SOW(s)
Task 9:	$0	–	$0	Program Management
Task 10.	$0	–	$0	Program Management
Task 11.	$0	–	$0	Program Management
Task 12.	$345,244	$289,412	$634,655	Contractor SOW(s)
Task 13.	$0	–	$0	Program Management
Task 14.	$0	–	$0	Program Management
Task 15.	$0	–	$0	Program Management
Task 16.	$0	–	$0	Program Management
Task 17:	$0	$0	$0	Project # PIP-12K
Task 18:	$0	$0	$0	Project # 19B & 71
Task 19:	$0	$0	$0	Program Management
	$345,244	$289,412	$634,655	

X. Reviewers:

FWS (Bob Muth, Angela Kantola, George Smith)

CWCB (Dan McAuliffe)

CRWCD (Ray Tenney, Eric Kuhn)

BR (Brent Uilenberg, Bob Norman)

XI. References

Ayres Associates. 1999. Yampa River research final synthesis report. Ayres Project No. 34-0683.00, Fort Collins.

BBC Research & Consulting. 1998. Yampa Valley water demand study, final report. Prepared for Recovery Program for Endangered Fishes of the Upper Colorado River. Denver, CO.

Colorado Division of Wildlife. 1998. Aquatic wildlife management plan Yampa River basin, Colorado. Colorado Division of Wildlife, Aquatic Wildlife Section, Denver.

Modde, T., W. J. Miller, and R. Anderson. 1999. Determination of habitat availability, habitat use, and flow needs of endangered fishes in the Yampa River between August and October. Final Report, U.S. Fish and Wildlife Service Colorado River Fish Project (Vernal, Utah) to Upper Colorado River Endangered Fish Recovery Program. Denver.

Tyus, H.M. and J.F. Saunders, III. 1996. Nonnative fishes in natural ecosystems and a strategic plan for control of nonnatives in the Upper Colorado River Basin. Draft Report. Center for Limnology, University of Colorado at Boulder. 83 pp.

Tyus, H.M. and J.F. Saunders, III. 2001. An evaluation of the role of tributary streams for recovery of endangered fishes in the Upper Colorado River Basin, with recommendations for future actions. Draft report to the Upper Colorado River Endangered Fish Recovery Program. Center for Limnology, University of Colorado at Boulder.